Carnegie Lake Interagency Workgroup Meeting
September 13, 2004
10 AM at Princeton University
Meeting Notes

Following introductions, Mr. John O'Connor and Ms. Megan Grubb from the U.S. Army Corps of Engineers, New York District (Corps) gave a brief overview of the Corps and State of New Jersey, Department of Environmental Protection (NJDEP), **Stony Brook-Millstone Watershed Flood Damage Reduction and Ecosystem Restoration Feasibility Study**. The focus of available environmental restoration study funds on Carnegie Lake and the focus of flood control funds on the Manville flood area were discussed. The anticipation of limited funding for the following fiscal year, beginning October 2004, was highlighted.

A PowerPoint Presentation was given regarding the pollutant and hydrologic analysis done to date for the Carnegie Lake Phase I Study. Dr. Fred Lubnow of Princeton Hydro, LLC gave the presentation on behalf of the Corps. This PowerPoint Presentation will be available on the Corps website. An announcement will be sent out via email when the information is posted to: http://www.nan.usace.army.mil/business/prjlinks/flooding/stone/index.htm

The following are discussion points during and following the presentation:

1) The flow going into the D&R Canal should be looked at, as some flow from the watershed would enter the canal rather than Carnegie Lake. A Water Quality report by Jack Gibbs should be reviewed. - Mr. Bob Schopp from USGS may have a copy of the report.
2) Are updated land use types/GIS layers available for analysis? - Ms. Karen Dorris discussed that 2002 flyovers were conducted by the NJ Water Supply Authority, are in processing, and may be available in the next year. These photos/layers could be used for future comparison of developed vs. agricultural/other land uses.
3) Total Suspended Solid loads in tons could be compared to previous models/historical data from 1997.
4) Have the 7 Regional BMPs (impoundments on the Stony Brook) been factored into the model used in analysis of pollutant loading, including TSS? These Regional BMPs were built with technical and cost share assistance, under the PL83-566 Small Watersheds Program, from the USDA Natural Resources Conservation Service (formerly the Soil Conservation Service). The local sponsors were Stony Brook Millstone

Watershed Association, Mercer County Soil Conservation District, Mercer County and New Jersey Department of Environmental Protection. The primary purpose of the seven structures was to reduce sedimentation to the Princeton University-owned Carnegie Lake. To date, the model has not factored in the Regional BMPs such as sediment basins on the Stony Brook, but available data should be reviewed for modification. Discussion later pointed out that the future maintenance of these BMPs was in question. Some of the dams/basins may need to be removed due to lack of funding/maintenance commitment and current Dam Safety requirements. The model could consider different scenarios: No BMPs, BMPs functioning with impairment and BMPs functioning optimally. Some of the structures are 40+ years old and showing signs of age and disrepair. In some cases, there has been increased development downstream of the structures since their construction, which bumps these structures into high hazard classifications for dam safety. Mr. Greg Westfall from NRCS may have additional available data on the BMPs (Rosedale, Amwell etc.) The sediment trapped in the impoundments could have a large impact on sediment loads in the river system if the structures were removed. Mr. Bob Ortega pointed out that the National Science Foundation report on Carnegie Lake contains generic information on the sediment impoundments. Greg Westfall has previously provided a summary of the literature on sedimentation to Dr. Fred Lubnow.

5) Generalized Loading Functions Models have been used in Pennsylvania that take into account additional factors/characteristics of the landscape. A more basic Unit Area Loading model was used for Phase I Study at Carnegie for purposes of looking at Lake Ecology.
6) Research has been done on TSS loads in Pennsylvania, specifically in Bucks County. It was observed there that 75% of the TSS load was due to streambank erosion. This is one of the reasons the Corps and Princeton Hydro will be looking at streambank stabilization as a restoration measure for the Carnegie Lake watershed. Chris Altomari from Stony Brook-Millstone Watershed Association (SBMWA) discussed similar research done by Mercer County at Colonial Lake in identifying sources of TSS loads as predominantly streambank erosion. Ms. Altomari may have an available copy of this report.
7) Restoration evaluation will focus on areas prioritized by pollutant loads. Streams with higher pollutant loads will be targeted first.
8) Only 3 in-lake water quality samples taken during the 2003 data collection effort had phosphorus levels below state criteria, but yet algal blooms are not observed due to the high flush/low retention time of the lake. Algal blooms in the lake are limited to cove/stagnant areas. Some of the models used for other natural lakes or larger lake systems cannot be applied to Carnegie Lake due to Carnegie's limited retention time. Models can be developed specific to a lake (Orendale), but currently only a 1 year database is available for Carnegie Lake. A regression analysis between Total Phosph. and Chlorophyll can be done.

9) For Carnegie Lake, solids have more of an impact than phosphorus due to flushing. Input of excessive solids can lead to loss of open water and have fisheries and recreation impacts.
10) The Corps and Princeton Hydro plan to have stream walk visits in October to look for restoration opportunities. Ms. Altomari mentioned that SBMWA has conducted numerous field walks and stream restoration projects. Beden, Rocky and Cranberry Brook were mentioned, as was Six-mile run. 4 out of the 23 watersheds. SBMWA generally conducts restoration on public lands, although one restoration project was completed at a golf course by volunteers. Mr. O'Connor discussed that the Federal government may be able to gain easements on private lands for restoration work that could not be accomplished by the local watershed organization.
11) Has any of the Carnegie Lake water/sediment chemistry sampling included PAH or mercury? No. Sediment chemistry will be conducted at a later time if spot dredging is proposed. Funding was focused elsewhere to date.
12) The dam at Carnegie Lake is under structural evaluation currently, and it is anticipated that the dam will need to be replaced. Princeton University is working with contractors to look at hydrostatic loads, cores of the existing dam, historical recordation, etc. Mr. Allen Roth and Dr. Lubnow will share information regarding hydrostatic loads in relation to proposed restoration.
13) Mr. Thomas Amidon suggested using real time data from stream gauges on the Millstone and Stony Brook. Mr. Amidon, who is working on a TMDL for the NJDEP, will have information to share with Dr. Lubnow and vice-versa.
14) Education of local property owners surrounding the lake about invasive plant species management was mentioned as a possible restoration opportunity. Ms. Altomari discussed the invasive species program held by The Nature Conservancy last May and a program held by the SBMWA on invasive species. Both information sessions were well attended. SBMWA has an upcoming Invasive Species talk on September 22nd in the morning. See website or contact SBMWA for more information.
15) See attached sheet for meeting attendees.

Notes Prepared by:
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Thanks to Mr. Bob Ortega of Princeton University for providing the host facility for the meeting.

September 13, 2004 Meeting Attendees

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